

P-6.7 Explain the relationship among frequency, fundamental tones, and harmonics in producing music

Revised Taxonomy Levels 2.7 B Explain conceptual knowledge

Physical science students did not address this indicator

It is essential for students to

- ❖ Understand the concept of fundamental tones and harmonics.
- ❖ Understand the relationship between the frequency of sounds that are one octave apart.
- ❖ Understand that the quality of a sound depends upon the number of harmonics produced and their relative intensities.

Assessment

The verb explain means that the major focus of assessment should be for students to “construct a cause and effect model”. In this case, assessments will ensure that students can model how the frequency of the tones produced affect the perception of sound and how the ratio of the frequencies of several sounds determine the quality of a sound. Because the indicator is written as conceptual knowledge, assessments should require that students understand the “interrelationships among the basic elements within a larger structure that enable them to function together.” In this case, assessments must show that students can construct a cause and effect statement relating how the frequency and of sound waves affect the human perception of sound and its quality.